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National Petroleum Reserve, Alaska Legacy Data Archive

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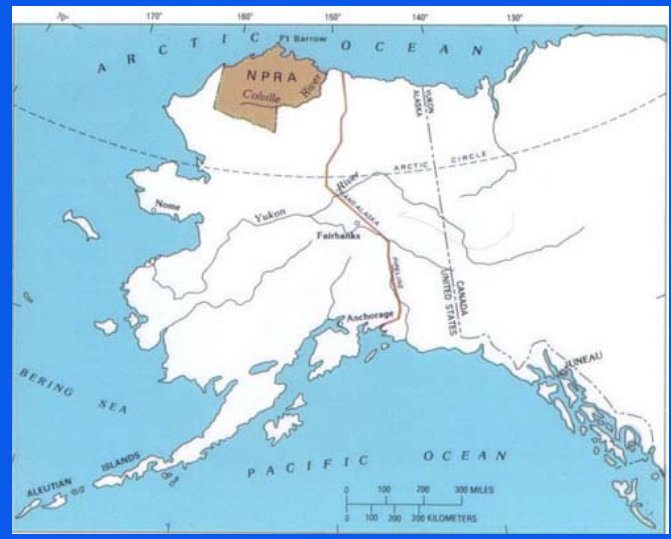
U.S. Department of the Interior
U.S. Geological Survey

Exploration of the NPRA

- 1943-1953 Exploration Program
  - Dept. of the Navy
  - 45 shallow core test wells
  - 36 test wells
- 1974-1981 Exploration Program
  - Contracted to Husky Oil Operations
  - 28 test wells
  - Over 12,000 line-miles of seismic data
  - Almost $1 Billion spent



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1974–1981 Exploration Program - Original Public Access to Data

- Magnetic tapes, well logs, and paper documents originally distributed through NOAA's National Geophysical Data Center
- In 1993 NOAA returned the materials to the USGS

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NPRA Data Storage Problems – Magnetic Tapes

- 12,000 9-track and 21-track magnetic tapes
  - Most close to 20 years old
  - 1,200 cubic feet of expensive, conditioned storage
  - Expensive, specialized, tape library storage rack system
  - Paper documentation not stored in the same location as the tapes

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NPRA Data Storage Problems – Paper Documents

- 15,000+ pages of seismic data documents
- Hundreds of large seismic data displays
- Hundreds of well logs, many of which tens of feet long
- Thousands of pages of documents and analyses from the exploratory wells
- Most stored in boxes in a warehouse, making access impossible

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NPRA Data Distribution Problems

- Labor Intensive
  - Data requests collected, inventoried, and packaged by hand
  - Data requested usually stored in more than one location
  - The reverse process required when data returned

- Time Consuming
  - Many hours required to answer data requests

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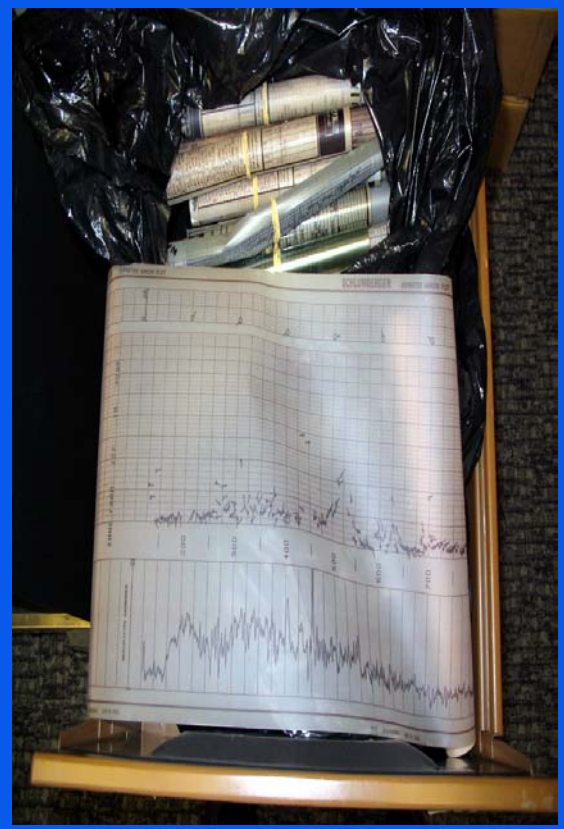
NPRA Data Distribution Problems – Cont'd

- Single Person / Single Use Data
  - Only one copy of many data items
  - Access to data limited to one person at a time
- Potential for Data Loss
  - Single copy items could be lost or destroyed



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Storage Solutions Using CD-R / DVD-R Technology

- Data Captured to CD-R / DVD-R
  - Magnetic tape data captured to digital files
  - Seismic sections, well logs, maps and other figures scanned into image files
  - Paper documents scanned into image files

- Captured data documented and organized into data archive CD-R's and DVD-R's

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Storage Solutions Using Robotic Jukebox Technology

- Discs stored in robotic, 600 slot jukeboxes.
  - CD Jukebox: 375 GB
  - DVD Jukebox: 2.75 TB
- Jukeboxes made Internet-accessible through the a web site

- http://nerslweb.cr.usgs.gov

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Distribution Solutions Using Web Access in Near Real Time

- Internet Near-Line Data Access
  - Access to data on an “as needed” basis.
  - Discs are robotically placed on-line in response to direct requests through a web site.
- Access to data is 24 hours per day, seven days a week, without human intervention.
- Multiple users have access to data previously restricted to one copy / one user.

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NPRA Legacy Data Archive – Seismic Data Available

- Demultiplexed seismic data, SEG-Y format
  - Support data, JPEG format and Adobe Acrobat PDF files
- Processed seismic data, SEG-Y format
- Stacked sections, JPEG format
- Shotpoint location information, latitude / longitude decimal-degrees, ASCII text

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NPRA Legacy Data Archive – Exploratory Well Data Available

- Digital well logs, LAS format
- Well log images, TIFF format
- Well core images, JPEG format
- Reports, analyses, and other documents, Adobe Acrobat PDF files
- Well information, latitude / longitude, decimal-degrees

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NPRA Legacy Data Archive – Publications Available

- Hard to find or out of print publications, Adobe Acrobat PDF format
  - Tetra Tech Final Report
  - Older USGS Publications

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NPRA Legacy Data Archive Web Site

http://nerslweb.cr.usgs.gov

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Conclusion

- The NPRA Legacy Data Archive is one of the largest geophysical data sets in the public domain
- Original data formats and storage and distribution problems made this data set essentially inaccessible to most
- CD-R / DVD-R technologies, joined with robotic jukeboxes and internet access, have transformed these data from virtually non-existent to accessible 24 hours a day

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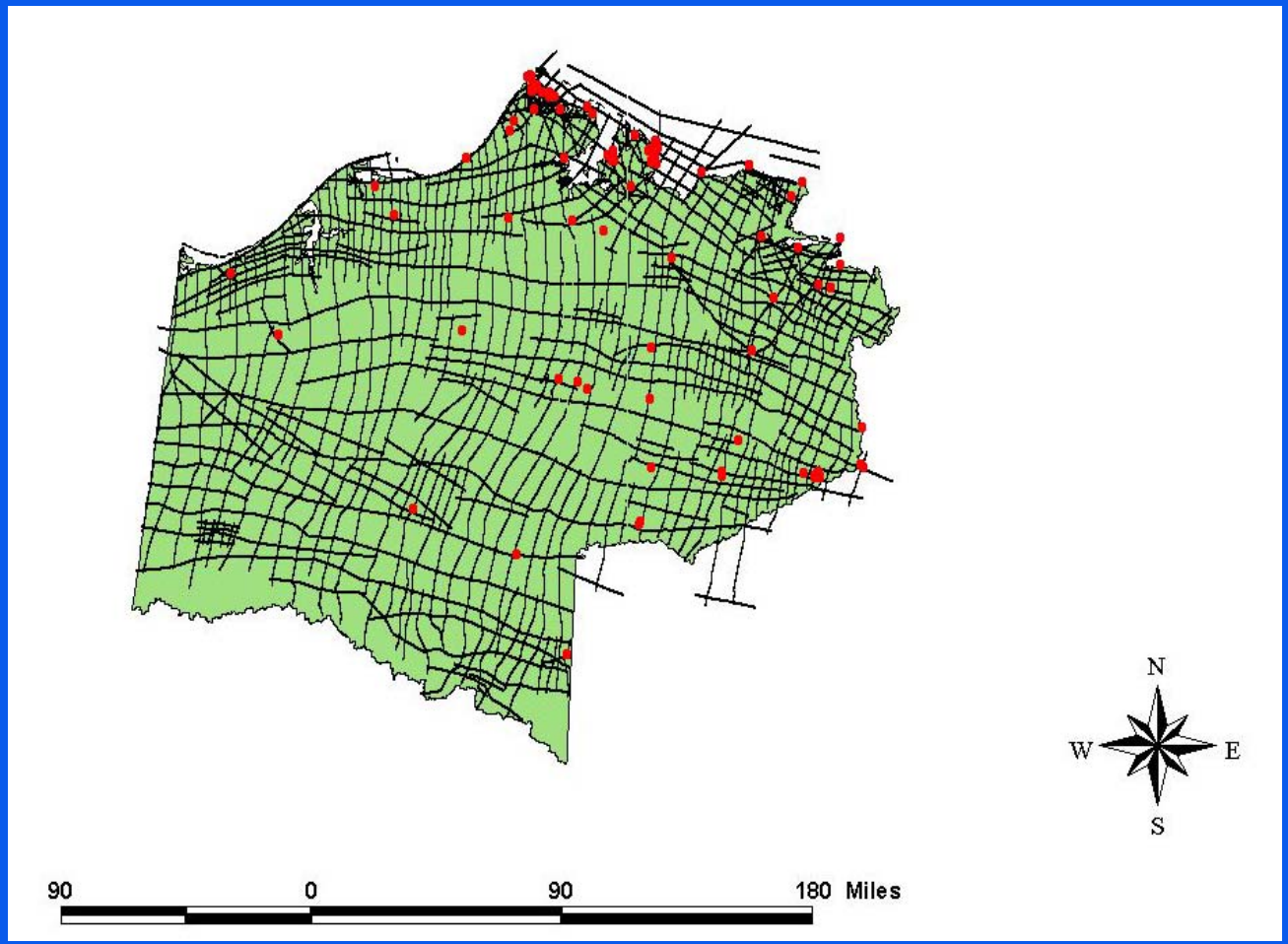
NPRA Seismic Line and Well Locations Map



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